

Appl. No. : 10/722,313
Filed : November 25, 2003

AMENDMENTS TO THE CLAIMS

1. (Previously Presented) A magnetorheological fluid comprising polarizable particles and a fluid component,
wherein the fluid component comprises a carrier fluid and an additive;
wherein the additive comprises a parafluoropropene and oxygen polymerized amide derivative.
2. (Previously Presented) The magnetorheological fluid of claim 76 wherein the iron particles range in size from about 0.2 to about 50 microns.
3. (Original) The magnetorheological fluid of claim 2 wherein the iron particles range in size from about 0.4 to about 10 microns.
4. (Original) The magnetorheological fluid of claim 3 wherein the iron particles range in size from about 0.5 to about 9 microns.
5. (Previously Presented) The magnetorheological fluid of claim 76 wherein the iron particles comprise about 1 to about 60% (v/v) of the total magnetorheological fluid volume.
6. (Original) The magnetorheological fluid of claim 5 wherein the iron particles comprise about 10 to about 50% (v/v) of the total magnetorheological fluid volume.
7. (Original) The magnetorheological fluid of claim 6 wherein the iron particles comprise more preferably from about 20 to about 40% (v/v) of the total magnetorheological fluid volume.
8. (Original) The magnetorheological fluid of claim 1 wherein the carrier fluid is selected from the group consisting of silicone, hydrocarbon, esters, ethers, fluorinated esters, fluorinated ethers, mineral oil, unsaturated hydrocarbons, and combinations thereof.
9. (Original) The magnetorheological fluid of claim 8 wherein the carrier fluid comprises one or more perfluorinated polyethers.
10. (Cancelled)
11. (Cancelled)
12. (Cancelled).
13. (Cancelled).
14. (Original) The magnetorheological fluid of claim 1 wherein the additive comprises from about 0.1 to about 20% (v/v) of the fluid component.

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15. (Original) The magnetorheological fluid of claim 14 wherein the additive comprises from about 1 to about 15% (v/v) of the fluid component.

16. (Original) The magnetorheological fluid of claim 15 wherein the additive comprises from about 2 to about 10 % (v/v) of the fluid component.

17. (Original) The magnetorheological fluid of claim 1 comprising:

about 28% (v/v) iron particles; and

about 72% (v/v) fluid component;

wherein said fluid component comprises about 5% (v/v) additive and about 95% (v/v) perfluorinated polyether carrier fluid.

18. (Cancelled)

19. (Cancelled)

20. (Cancelled)

21. (Cancelled)

22. (Cancelled)

23. (Cancelled)

24. (Cancelled)

25. (Cancelled)

26. (Cancelled)

27. (Cancelled)

28. (Cancelled)

29. (Cancelled)

30. (Cancelled)

31. (Cancelled)

32. (Cancelled)

33. (Cancelled)

34. (Cancelled)

35. (Cancelled)

36. (Cancelled)

37. (Cancelled)

38. (Cancelled)

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39. (Previously Presented) The magnetorheological fluid of claim 1 wherein the magnetorheological fluid is operable over a temperature range from about 10 to about 115° F.

40. (Previously Presented) The magnetorheological fluid of claim 1 wherein the carrier fluid has a viscosity at 104° F of about 10 to about 100 cSt.

41. (Original) The magnetorheological fluid of claim 40 wherein the carrier fluid has a viscosity at 104° F of about 30 to about 80 cSt.

42. (Original) The magnetorheological fluid of claim 41 wherein the carrier fluid has a viscosity at 104° F of about 50 to about 70 cSt.

43. (Previously Presented) The magnetorheological fluid of claim 1 wherein the carrier fluid has a viscosity index from about 100 to about 340 based on kinematic viscosity at 104 and 212°F.

44. (Original) The magnetorheological fluid of claim 43 wherein the carrier fluid has a viscosity index from about 120 to about 320 based on kinematic viscosity at 104 and 212°F.

45. (Previously Presented) The magnetorheological fluid of claim 1 wherein the carrier fluid has a pour point ranging from about -70°C to about -40°C.

46. (Previously Presented) The magnetorheological fluid of claim 1 wherein the carrier fluid has a percent volatility at 121°C ranging from about 0.01% to about 20%.

47. (Currently amended) A magnetorheological fluid ~~comprising~~ consisting of polarizable particles and a fluid component,

wherein the fluid component consists essentially of a carrier fluid and an additive;

wherein the carrier fluid consists essentially of one of the group consisting of silicone, hydrocarbon, esters, ethers, fluorinated esters, fluorinated ethers, mineral oil, and unsaturated hydrocarbons; and

wherein the additive consists essentially of a functionalized perfluorinated polyether fluid.

48. (Currently amended) The magnetorheological fluid of claim 47-57 wherein the polarizable particles comprise iron particles.

49. (Previously presented) The magnetorheological fluid of claim 48 wherein the iron particles range in size from about 0.2 to about 50 microns.

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50. (Previously presented) The magnetorheological fluid of claim 48 wherein the iron particles range in size from about 0.4 to about 10 microns.

51. (Previously presented) The magnetorheological fluid of claim 48 wherein the iron particles range in size from about 0.5 to about 9 microns.

52. (Previously presented) The magnetorheological fluid of claim 48 wherein the iron particles comprise about 1 to about 60% (v/v) of the total magnetorheological fluid volume.

53. (Previously presented) The magnetorheological fluid of claim 52 wherein the iron particles comprise about 10 to about 50% (v/v) of the total magnetorheological fluid volume.

54. (Previously presented) The magnetorheological fluid of claim 53 wherein the iron particles comprise more preferably from about 20 to about 40% (v/v) of the total magnetorheological fluid volume.

55. (Currently amended) The magnetorheological fluid of claim 47-57 wherein the carrier fluid comprises one or more perfluorinated polyethers.

56. (Currently amended) The magnetorheological fluid of claim 47-57 wherein the functionalized perfluorinated polyether fluid additive comprises one or more functional groups selected from the group consisting of silane, phosphate, hydroxyl, carboxylic acid, amine, dihydroxyl, ethoxy ether, isocyanate, aromatic, ester and alcohol functions.

57. (Currently amended) ~~The~~ A magnetorheological fluid of claim 47 comprising polarizable particles and a fluid component

wherein the fluid component consists essentially of a carrier fluid and an additive;

wherein the carrier fluid consists essentially of one of the group consisting of silicone, hydrocarbon, esters, ethers, fluorinated esters, fluorinated ethers, mineral oil, and unsaturated hydrocarbons; and

wherein the additive consists essentially of a functionalized perfluorinated polyether fluid

wherein the functionalized perfluorinated polyether fluid additive comprises a poly(hexafluoropropylene epoxide) with a carboxylic acid located on the terminal fluoromethylene group.

58. (Currently amended) The magnetorheological fluid of claim 47-57 wherein the additive comprises from about 0.1 to about 20% (v/v) of the fluid component.

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59. (Previously presented) The magnetorheological fluid of claim 58 wherein the additive comprises from about 1 to about 15% (v/v) of the fluid component.

60. (Previously presented) The magnetorheological fluid of claim 59 wherein the additive comprises from about 2 to about 10 % (v/v) of the fluid component.

61. (Currently Amended) ~~The A magnetorheological fluid of claim 47 comprising:~~

about 32% (v/v) polarizable iron particles; and

about 68% (v/v) fluid component;

wherein said fluid component consists essentially of about 5% (v/v) additive and about 95% (v/v) perfluorinated polyether carrier fluid;

wherein said additive consists essentially of poly(hexafluoropropylene epoxide) with a carboxylic acid located on the terminal fluoromethylene group.

62. (Previously Presented) A magnetorheological fluid comprising polarizable particles and a fluid component,

wherein the fluid component comprises a carrier fluid and an additive;

wherein the additive comprises poly(hexafluoropropylene epoxide) with a carboxylic acid located on the terminal fluoromethylene group.

63. (Previously Presented) The magnetorheological fluid of claim 62 wherein the polarizable particles comprise iron particles.

64. (Previously Presented) The magnetorheological fluid of claim 63 wherein the iron particles range in size from about 0.2 to about 50 microns.

65. (Previously Presented) The magnetorheological fluid of claim 63 wherein the iron particles range in size from about 0.4 to about 10 microns.

66. (Previously Presented) The magnetorheological fluid of claim 63 wherein the iron particles range in size from about 0.5 to about 9 microns.

67. (Previously Presented) The magnetorheological fluid of claim 63 wherein the iron particles comprise about 1 to about 60% (v/v) of the total magnetorheological fluid volume.

68. (Previously Presented) The magnetorheological fluid of claim 67 wherein the iron particles comprise about 10 to about 50% (v/v) of the total magnetorheological fluid volume.

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69. (Previously Presented) The magnetorheological fluid of claim 68 wherein the iron particles comprise more preferably from about 20 to about 40% (v/v) of the total magnetorheological fluid volume.

70. (Previously Presented) The magnetorheological fluid of claim 62 wherein the carrier fluid is selected from the group consisting of silicone, hydrocarbon, esters, ethers, fluorinated esters, fluorinated ethers, mineral oil, unsaturated hydrocarbons, and combinations thereof.

71. (Previously Presented) The magnetorheological fluid of claim 70 wherein the carrier fluid comprises one or more perfluorinated polyethers.

72. (Previously Presented) The magnetorheological fluid of claim 62 wherein the additive comprises from about 0.1 to about 20% (v/v) of the fluid component.

73. (Previously Presented) The magnetorheological fluid of claim 72 wherein the additive comprises from about 1 to about 15% (v/v) of the fluid component.

74. (Previously Presented) The magnetorheological fluid of claim 73 wherein the additive comprises from about 2 to about 10 % (v/v) of the fluid component.

75. (Previously Presented) The magnetorheological fluid of claim 62 comprising:
 about 32% (v/v) iron particles; and
 about 68% (v/v) fluid component;
 wherein said fluid component comprises about 5% (v/v) additive and about 95% (v/v) perfluorinated polyether carrier fluid.

76. (Previously Presented) The magnetorheological fluid of claim 1 wherein the polarizable particles comprise iron particles.

77. (Cancelled)

78. (New) The magnetorheological fluid of claim 61 wherein the iron particles range in size from about 0.2 to about 50 microns.

79. (New) The magnetorheological fluid of claim 61 wherein the iron particles range in size from about 0.4 to about 10 microns.

80. (New) The magnetorheological fluid of claim 61 wherein the iron particles range in size from about 0.5 to about 9 microns.